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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,069	04/13/2004	Greg A. Dunko	9314-67	3975
54414	7590	08/25/2006	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC, P.A. P.O. BOX 37428 RALEIGH, NC 27627			LU, ZHIYU	
			ART UNIT	PAPER NUMBER
			2618	

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/823,069	<b>Applicant(s)</b> DUNKO, GREG A.	
	<b>Examiner</b> Zhiyu Lu	<b>Art Unit</b> 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 6-9, 12-15, 18, 20-24, 26 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamura (US Patent#5335368).

Regarding claim 1, Tamura anticipates a portable electronic device, comprising:

a housing (10 and 40 of Fig. 1);

an antenna associated with the housing (20 of Fig. 1); and

a multi-mode matching circuit (12 of Fig. 1, Fig. 3) operatively associated with the antenna, the multi-mode matching circuit being configured to operate in a first mode when the housing of the portable electronic device is in a first configuration and in a second mode when the housing of the portable electronic device is in a second configuration (Figs. 3-6, column 2 lines 34-51, column 3 line 63 to column 4 line 22).

Regarding claim 7, Tamura anticipates a mobile terminal, comprising:

a housing (10 and 40 of Fig. 1);

an antenna associated with the housing (20 of Fig. 1);

a multi-mode matching circuit (12 of Fig. 1, Fig. 3) operatively associated with the antenna; and

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a sensor (13 of Fig. 3, column 2 lines 3-12) operatively associated with the multi-mode matching circuit and configured to detect a position of the antenna relative to the housing and/or a configuration of the housing of the mobile terminal, wherein the multi-mode matching circuit is configured responsive to the detected position of the antenna and/or the configuration of the housing of the mobile terminal (Fig. 3, column 3 line 63 to column 4 line 12).

Regarding claim 14, Tamura anticipates a method of operating a portable electronic device, comprising:

detecting a configuration of a housing of the portable electronic device (column 2 lines 3-12); and

adjusting a multi-mode matching circuit based on the detected configuration of the housing of the portable electronic device (column 3 line 63 to column 4 line 12).

Regarding claim 22, Tamura anticipates a method of operating a mobile terminal, comprising:

detecting a position of an antenna relative to a housing of the mobile terminal and/or a configuration of the housing of the mobile terminal (Figs. 7-8, column 4 lines 13-22); and

configuring a multi-mode matching circuit responsive to the detected position of the antenna and/or the configuration of the housing of the mobile terminal (column 2 lines 26-51).

Regarding claims 2, 8, 15 and 23, Tamura anticipates the limitations of claims 1, 7, 14 and 22.

Tamura also anticipates further comprising a sensor (13 of Fig. 3) operatively associated with the multi-mode matching circuit, wherein the sensor is configured to detect the first configuration of

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the housing of the portable electronic device and/or the second configuration of the housing of the portable electronic device and wherein the multi-mode matching circuit is configured to adjust at least one parameter of the multi-mode matching circuit responsive to the first and/or second detected configurations of the housing of the portable electronic device (column 2 lines 3-51).

Regarding claims 3, 9, 16 and 24, Tamura anticipates the limitations of claims 2, 8, 15 and 23. Tamura also anticipates the multi-mode matching circuit comprises an impedance matching circuit and wherein the at least one parameter of the multi-mode matching circuit comprises a resistance, a capacitance and/or an inductance (Figs. 3-4, column 3 lines 40-46).

Regarding claims 13 and 30, Tamura anticipates the limitations of claims 8 and 28.

Tamura also anticipates the antenna comprises a retractable antenna, wherein the antenna is in the first position when the retractable antenna is retracted and wherein the antenna is in the second position when the retractable antenna is extended (Figs. 7-8, column 4 lines 13-22).

Regarding claims 18 and 26, Tamura anticipates the limitations of claims 14 and 22.

Tamura also anticipates detecting a position of an antenna relative to a housing of the mobile terminal and/or a configuration of the housing further comprises repeatedly detecting the position and/or configuration responsive to a detected change in position of the antenna relative to the housing and/or a configuration of the housing (Figs. 7-8, column 2 lines 26-51, column 4 lines 13-22).

Regarding claims 20 and 28, Tamura anticipates the limitations of claims 14 and 22.

Tamura also anticipates further comprising: operating the multi-mode matching circuit in a first mode when the detected configuration is a first detected configuration; and operating the multi-mode matching circuit in a second mode when the detected configuration is a second detected configuration (column 3 line 63 to column 4 line 12).

Regarding claims 6, 12, 21 and 29, Tamura anticipates the limitations of claims 1, 8, 20 and 28.

Tamura also anticipates the portable electronic device comprises a portable electronic device having a flip configuration, wherein the housing of the portable electronic device is in the first configuration when the portable electronic device is open and wherein the housing of the portable electronic device is in the second configuration when the portable electronic device is closed (column 3 line 63 to column 4 line 12).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 5, 11, 19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (US Patent#5335368) in view of Ono et al. (US2003/0144031).

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Regarding claims 5, 11, 19 and 27, Tamura teaches the limitations of claims 2, 8, 14 and 22.

But, Tamura does not expressly disclose further comprising a timer circuit operatively associated with the sensor, wherein the sensor is further configured to detect the first and/or second configuration of the housing of the portable electronic device responsive to expiration of the timer circuit.

Ono et al. teach comprising a timer circuit operatively associated with the sensor, wherein the sensor is further configured to detect the first and/or second configuration of the housing of the portable electronic device responsive to expiration of the timer circuit (paragraph 0094).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate operating sensor with a timer taught by Ono et al. into the portable electronic device and method of Tamura, in order to provide timing reference to sensor detection.

3. Claims 4, 10, 17 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (US Patent#5335368) in view of Kim (US Patent#6862432).

Regarding claims 4, 10, 17 and 25, Tamura teaches the limitations of claims 2, 8, 16 and 23.

But, Tamura does not expressly disclose at least one parameter is stored in a lookup table, the portable electronic device further comprising a processor operatively associated with the sensor, the processor being configured to locate the at least one parameter in the lookup table using the first and/or second detected configuration of the housing of the portable electronic device as a pointer for an entry in the lookup table.

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Kim teaches at least one parameter is stored in a lookup table, the portable electronic device further comprising a processor operatively associated with the sensor, the processor being configured to locate the at least one parameter in the lookup table using the first and/or second detected configuration of the housing of the portable electronic device as a pointer for an entry in the lookup table (column 8 line 36 to column 10 line 44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate utilizing lookup table for adjusting matching circuit taught by Kim inot the portable electronic device and method of Tamura, in order to provide more accurate auto adjustment to match impedance.

### *Conclusion*


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zhiyu Lu whose telephone number is (571) 272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vuong Quochien can be reached on (571) 272-7902. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Zhiyu Lu   
August 15, 2006

 8/21/06  
QUOCHIEN B. VUONG  
PRIMARY EXAMINER